In the Specification:

Please replace paragraphs [0005], [0050], [0054], [0058], [0060], [0065], [0066] and [0068] of the specification with the following amended paragraphs and add paragraph [0050.1]:

[0005] A number of tools using ultrasound imaging, for example as described in U.S. Pat. No. 5,265,612 and U.S. Pat. No. 5,107,837, ~~US-5265612-and-US-5107837,~~ are known. However, these are normally directed at locating abnormalities in tissue revealed by differences in elastic properties compared to those of the matrix. Others (eg. U.S. Pat. No. 5,785,663 ~~US5785663~~) have used pressure distribution under a probe to reveal surface and sub-surface areas of differing elastic properties to that of the matrix tissue.

[0050] FIGS. 2[[.]] and 3 are corresponding views of two further embodiments;

[0054] FIG. 1 shows schematically a hydraulic piston based tissue quality measurement apparatus 1 with a probe portion 2 thereof inserted in the urethral passage 3 of a patient's penis 4 to examine the tissue quality of the prostate gland 5. In more detail the apparatus 1 generally comprises a relatively thick-walled partly flexible elongate hydraulic fluid tube 6, of a material such as polypropylene, which is substantially firm so as to be dimensionally stable both longitudinally and axially so that a distal end portion 7 providing said probe portion 2 can be propelled along the urethral passage 3 by pushing on the proximal end portion 8, and so that hydraulic pressure can be efficiently transmitted along said tube 6 from the proximal 8 to the distal end portion 7 thereof.

[0058] The displacement of the head pistons ~~15~~ 11 will be resisted by the resiliently displaceable sheath portions 15 as well as the portion 23 of prostate tissue 5 displaced thereby. This will result in an increase in pressure in the hydraulic fluid measured by the pressure transducer 22, which depends on the elastic properties of the prostate tissue portion 23 displaced by the head piston 11, as well as those of the resiliently deformable sheath portions 15. Due to the damping characteristics of the displaced tissue portion 23, the increase in pressure (stress) will be out of

phase with the displacement (strain) and the ratio of amplitudes and phase angle difference are used to determine the dynamic modulus.

[0060] [[52]] Fifty-two fresh tissue specimens were collected from [[10]] ten patients undergoing Transurethral Resection of the Prostate (TURP) for benign prostatic obstruction (BPO). [[16]] Sixteen fresh tissue specimens were collected from [[3]] three patients undergoing TURP for obstruction due to carcinoma of the prostate (PCa). Individual tissue specimens underwent immediate mechanical testing, by applying a dynamic compressive strain to the samples using an electro-mechanical shaker, and the "dynamic modulus" or Amplitude Ratio (|E*|) was derived. |E*| values for benign and malignant tissue specimens were compared with single factor analysis of variance (ANOVA). Specimens were then fixed in formalin and embedded in paraffin wax. Epithelial tissues (ET) within sections from the processed tissues were then stained immunohistochemically with anti-PSA, and the size of individual glands within the stained ET measured with ~~computerised~~ computerized image analysis. Individual gland size within benign and malignant tissue specimens were also compared with ANOVA.

[0065] The probe portion 2 houses, inside a sheath 14, a head portion 9 with a plurality of angularly distributed radially outwardly extending head elements 28 each of which has a piezoceramic element 29 sandwiched between an outwardly facing shoe element and a stress diaphragm 31. An exploded view of the stress diaphragm 31 is shown in Fig. 2A. The piezoceramic elements 29 are electrically connected 32 to an electrical signal supply device 33 formed and arranged for applying an electrical signal at a range of different frequencies for activating the piezoceramic elements 29 so as to induce a predetermined displacement of the shoes 30. The force applied to the perturbed prostate tissue portion 23 is monitored by means of monitoring distortion of the stress diaphragm 31 using, for example, optical interferometry in a known manner (see for example, Gander et al), the stress diaphragm 31 being coupled by optical fibers 34 to an optical interferometer device 35. The piezoceramic elements 29 could alternatively be provided with force transducers in the form of a micro-fabricated piezo-resistive strain gauge, mounted on the diaphragm to monitor its strain ~~29a~~.

[0066] In use of the apparatus, when an electrical signal is applied to the piezoceramic elements 29, a force is applied to the shoes 30 pressing them against the tissue portion 23.
At the same time a corresponding reaction is experienced by the stress diaphragm 31. The displacement of the piezoceramic is determined by its characteristics and by the voltage applied ~~an~~ and current drawn, whereas the strain in the reaction diaphragm measures the force applied. The force and displacement are used to determine dynamic ~~modulus~~ moduli over a range of ~~frequency~~ frequencies of actuation [[is]] in an analogous way to that described above.

[0068] In use of this apparatus 1, the angular position of the rotary motor can be monitored by a shaft encoder or ~~using~~ use of the current-voltage characteristics of the motor. The angular position determines directly the displacement of the pistons. The force can be determined from the torque ~~toque~~ delivered by the motor, which can be measured either by its voltage-current characteristic or by the incorporation of a torque transducer in the drive shaft. Again, dynamic ~~modulus~~ moduli can be determined from the time histories of the force and displacement.

[0050.1] FIG. 2A is an exploded view of the stress diaphragm of FIG. 2;

Please insert the following sections titles into the specification:

Before paragraph [0001], please insert "BACKGROUND."

Between paragraphs [0005] and [0006], please insert "BRIEF SUMMARY OF THE INVENTION."

Between paragraphs [0047] and [0048], please insert "BRIEF DESCRIPTION OF THE DRAWINGS."

Between paragraphs [0053] and [0054], please insert "DETAILED DESCRIPTION OF THE INVENTION."

Before Claim 1, please insert "What is claimed is:".